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approach

Fuel

Last winter we devoted an issue to fuel and got a tremendous amount of feedback. Many readers sent comments or questions about tanking from Air Force tankers. In this issue, we return to fuel-related subjects, with special emphasis on aerial refueling.

Fuel is always on an aviator's mind. You can never seem to get enough of it.

Ever since the earliest days of powered flight, aviators and designers have tried to figure out how a pilot can refuel his aircraft without having to land. The benefits are obvious: You can extend the operational range, and you can save aircraft that need gas to stay airborne until a deck is ready or it can reach a divert, which is especially important in carrier operations.

One of the earliest known attempts at transferring fuel in flight was conducted as early as 1912, when aviators passed cans of gasoline from one aircraft to another. Later, in 1923, the US Navy got into the act when Lt. Geoffrey Cabot reportedly snatched a five-gallon can of gasoline from a sea sled and refueled in flight. These methods were not widely accepted.

A more practical concept was explored by the Army Air Service during a 1923 endurance flight. Using a couple of DH-4B Liberty aircraft (one modified to transfer fuel with a hose and another to receive it) one aircraft was kept aloft for over 37 hours. This experiment was followed by a number of endurance records, but no practical system was introduced for everyday operations. It wasn't until the Korean war that aerial refueling was developed to the point where it could be introduced into a combat situation. The advent of fuel-thirsty jets sped the introduction of a variety of tanker aircraft, and by the late '50s, virtually every jet that flew off a carrier was sporting a refueling probe.

Today aerial refueling is a standard feature of tactical aviation. It allows us to go farther and remain on-station longer. Tankers hawk the flight deck day and night, giving pilots a little more juice if they need a few extra looks at the deck. To the guys "in the barrel," the tanker is a welcome sight. But it is not without hazard. We've lost several aircraft this year that were unable to tank successfully. If you've got to tank because of low fuel and can't get a successful plug, you've got three options: bingo, barricade or eject. This year Navy aviators have used all three.

LCdr. Dave Parsons
Editor

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CONTRIBUTED BY LCDR R.H. DAVID CFSD ASO

PORTRAIT OF A MAN ON THE WAY UP

some flyers

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s can forget

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inside approach

Vol. 33 No. 4

An improperly secured fuel cap turned this F/A-18 into a flying blowtorch. The pilot ejected successfully, and the aircraft was lost.

Photo by LCpl. Churchill

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Plugging Air

By Richard Shipman

AERIAL refueling is an essential skill for the tactical naval aviator. Navy pilots often find it necessary to refuel from Air Force tankers, typically during transatlantic flights, multiservice exercises and long-range strikes. For naval aviators trained to plug A-6s, A-3s and A-7s, tanking from Air Force aircraft, particularly the KC-135, presents some new challenges, not to mention some very real hazards. One F-14 crew found out recently about those hazards.

The Tomcat pilot was refueling from a KC-10 during a multiservice exercise. His first plug resulted in a poor seal and some leaking fuel, so he backed out and set up for another coupling. On this attempt, the pilot engaged the drogue dead-center at a closure rate of about 4 knots, well within the established closure limits. (The Air Force recently modified the KC-10 refueling procedure to reduce the recommended closure speed from 5-8 knots to 2-3 knots for all probe-equipped receivers.) However, rather than taking up smoothly, the hose bowed immediately, producing a 6- to 8-foot rubber sine wave that traveled up to the KC-10 and then back, greatly amplified. The Tomcat pilot reduced power to idle and popped the speed brakes about the same time the boom operator transmitted "emergency breakaway."

The basket assembly separated from the hose and remained attached to the Tomcat's probe while the hose sprayed raw fuel into the F-14's starboard engine. The resulting explosion blew the No. 1 ramp out of the intake; the remaining parts FODed the engine.

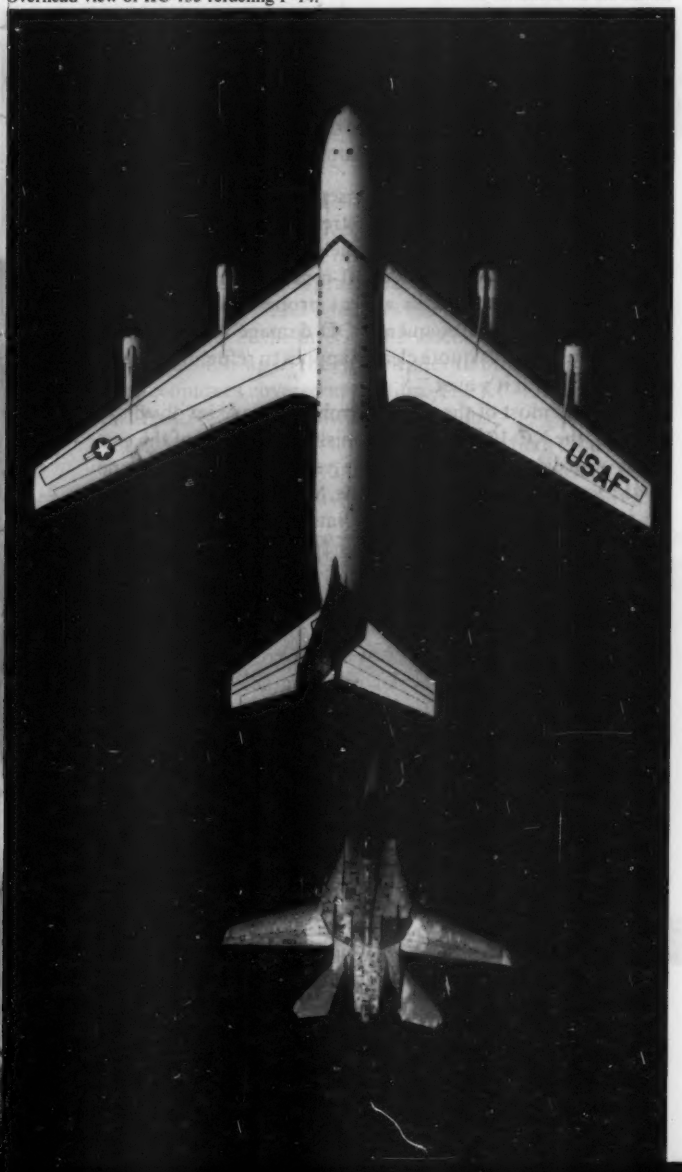
The right engine stalled, the RPM decayed and the turbine inlet temperature rose. The pilot secured the starboard throttle and fuel shutoff handle. With the left engine at military power, he needed almost full left rudder to overcome the drag of the basket on the probe and the dead right engine. The crew declared an emergency and made a successful single-engine recovery at a nearby Air Force base.

The F-14 crew was exonerated since the plug had been on-center with an acceptable closure rate. Reel response was set properly by the boom operator, and the KC-10 pilots provided a stable platform and steady basket. The cause of

Twilight tanking off a KC-135 by a pair of F-14s. LCdr. Dave Parsons

r Force Tankers

Overhead view of KC-135 refueling F-14. VF 103 TARPS via Lt. Slavin



the mishap was attributed to abnormal retraction of the hose, which produced the dangerous sine wave. The refueling hose either jammed or suffered a momentary faulty reel response. The take-up reel portion of the refueling system checked out normally.

The cost of repairs to the engine, inlet ramps and tanker package put this mishap into the Class C category. It's easy to see how the damage could have been much greater. Unfortunately, this mishap was not an isolated occurrence.

Naval Safety Center statistics document 16 Class A, B and C mishaps and seven hazardous situations that have occurred in the past five years involving Navy aircraft refueling from Air Force tankers. Of the 15 mishaps, 11 involved the KC-135. To put the problem in perspective, in 1985 the KC-135 community experienced 17 mishaps while refueling tactical aircraft: nine Air Force and eight Navy/Marine. Thus, Navy/Marine aircraft accounted for nearly 50 percent of the tactical jet mishaps while involved in only about 1 percent of the KC-135 refueling hours! What is it about Air Force tankers that creates problems for Navy pilots?

The KC-135 is normally configured with a single flyable boom maneuvered by an Air Force boom operator. To accommodate the Navy's probe and drogue type of refueling, a drogue-coupling kit is fitted to the telescoping portion of the boom with a 9-foot length of hose. This is a rigid, heavy hose that has no hydraulic takeup capability to cushion the impact of the probe meeting the drogue. Thus, contacting the basket at anything more than a minimum (2 knots) closure rate can result in dangerous hose whip.

Also, the Air Force basket is much heavier than Navy counterparts. Off-center hits can cause the hose to whip around with the equivalent of a 120-pound wrecking ball on the end, inflicting serious damage to canopies, probes and nearby accessories.

An A-7E pilot found out about KC-135 off-center hits on his first practice plug. His probe struck a point midway between the center and rim of the drogue, causing the basket to swing into the starboard windscreen. The basket slap

shattered the windscreen and destroyed the ECM receiver. The starboard glare shield and cowl panel lights were also damaged.

Since the KC-135 hose is only 9 feet long, the receiver pilot has only 4-5 feet to play with while he is plugged in. If he flies too far forward, he runs the risk of looping the hose around the probe. If he slides sideways, aft or down, an inadvertent off-center disconnect can occur — with dangerous repercussions, as an A-6 crew discovered.

The pilot damaged his probe while plugging a KC-135 at night. Since the KC-135 hose has no takeup reel, the hose must bow while the receiver is plugged in. The hose is designed to bow to the side. On this plug, however, the hose bowed upward causing the Intruder pilot to lose sight of the hose behind the canopy cross beam. Without a good visual reference on the hose, the pilot began an unintentional slow descent with no aft movement. When the hose came to the end of its length, a forced disconnect resulted in a bent probe.

Even though the boom operator of the KC-135s doesn't fly the boom during probe and drogue refueling, he still acts as a safety monitor. On at least one occasion though, the boom operator proved to be the cause of the mishap rather than the preventer. An F-14 pilot was on his initial qualification flight. His engagement was satisfactory, but he drove too far forward causing the hose to loop and wrap around the shank of the probe. The KC-135 boom operator reacted to this situation by retracting the telescoping portion of the boom. This served only to tighten the noose. The probe tip broke off as the retraction continued. The boom operator was cited for retracting the boom prematurely without coordinating with the receiving aircraft.

Even with a perfect coupling, a proper hose bow and good positioning during refueling, the dangers are not over. Improper disconnects can result in hose whips or bent probes.

KC-135 with boom drogue assembly attached to boom.

When the basket and probe are separated during the disconnect, the drogue will instantly streamline with the airflow. The drogue does not care if the refueler's probe or other parts of his aircraft are in the way. An off-center disengagement by a Tomcat pilot resulted in a bent probe and a fractured locking collar with subsequent FOD damage to the engine. Yogi Berra's famous quote clearly applies to refueling as well: "It ain't over till it's over."

Although most of the refueling mishaps have involved the KC-135, the KC-10 has not been mishap-free. One of the two Class A accidents in the past five years involved a Marine A-4M tanking from a KC-10. The Marine pilot's plug was on-center at an acceptable closure rate, but the takeup reel of the refueling package failed for undetermined reasons. The hose kinked and tore from the violent sine wave whipping action. The A-4 was showered with fuel that was ingested into the engine, causing an explosion and fire. The pilot ejected successfully, but the aircraft was destroyed.

Attempts to improve aerial refueling safety need to be centered in two primary areas: training and proficiency, and hardware. Of the two, improved training and increased proficiency appear to offer the quickest results.

The Air Force has produced an excellent training video titled "Probe and Drogue Air Refueling Procedures for Receiver Pilots." It covers procedures and techniques for refueling from both the KC-135 and KC-10 and is required viewing prior to initial quals. Periodic reviewing would also be worthwhile.

Good briefs can also go a long way toward improving safety. The Air Force requires face-to-face briefs prior to

AV-8B awaits its turn on a KC-10. MacAir via Timm

LCdr. Dave Parsons

initial interservice refueling. Ideally, a face-to-face brief would be held prior to every refueling between the Air Force and Navy, but the nature of carrier ops makes this impractical. The current unwritten practice requires a thorough brief by a qualified flight leader who uses the Air Force video presentation as part of the brief. If the video cannot be part of the brief, then it is up to the flight leader to brief the procedures and techniques covered in the film. The KC-135 brief should include at least the following precautions:

Engage the drogue at a speed no greater than 2 knots.

Fly the probe directly into the middle of the basket.

Be familiar with and use the standard Air Force radio calls.

Be careful not to push the hose farther than 4-5 feet forward. The boom operator will caution you when approaching one-half of the hose length.

Disengage with the same care as engaging. Pay special attention to disengaging in the same plane as the extended hose, with no lateral displacement.

If a hose loop occurs around the probe, discuss corrective action with the boom operator before taking any action. Do not attempt to unloop the hose by moving the probe around.

Be aware that the Air Force will be giving you JP-4. Your fuel gauges will read less than full even when you are topped off. Also, there are restrictions governing landing on the CV with a mix of JP-4 and JP-5.

Improved communications around the tanker might also serve to make things safer. To no one's surprise, the standard Air Force radio transmissions required to complete aerial refueling seem cumbersome and excessive to Navy pilots used to doing most refueling zip-lip. Nevertheless, there are some very good reasons for at least some of the Air Force calls. The KC-135 boom operator sets the boom for individual aircraft. A chart in the air refueling NATOPS Manual (fig. 4-10) gives azimuth and degree elevation by receiver aircraft, so he needs positive confirmation of aircraft type prior to starting the refueling.

Another example of necessary communication is the "contact" call that is required after the probe couples with the drogue. This might seem pointless to Navy pilots since Navy tanker pilots can feel the plug when it occurs, and, thus, no callout is necessary. The weight of the KC-135, however, precludes the crew from feeling the contact. Also, the boom operator's view is restricted so he cannot always tell when the receiver is engaged. This information is vital because the boomer will not throw his switches to enable fuel flow nor will he tell the copilot of the KC-135 to engage the transfer pumps until there is a positive verification of contact.

Communication is also important for the disconnect. Fuel spray is greatly reduced when the copilot secures the transfer pumps prior to the disconnect and the boomer's panel is set accordingly. Also, the boomer must recycle the boom after

KC-10 which has integral boom as well as probe and drogue capability.

USAF

A-7E plugged in basket of KC-10.

each dry plug since the telescoping portion is lubricated by fuel.

Since refueling from the KC-135 is so different, it stands to reason that good initial training and periodic proficiency refreshers are a key to safe refueling. Some commands such as the Sixth Fleet have established initial qualification standards (six day and six night plugs) and annual currency requirements (two plugs with USAF tankers within preceding 12 months). CINCLANT Instruction 3180.2A establishes a requirement for two day and two night plugs within 90 days. The cost and availability of AF tankers can be problems in meeting this requirement. Recent policy seems directed toward establishing and maintaining a high level of proficiency for units deploying with less emphasis paid to shore-based units.

On the hardware horizon, the Air Force has included in their 1990 POM programs to develop hose-reel refueling systems for 30 KC-135 aircraft. Other hardware improvements include improved lighting of the basket. The Air Force is also looking into the feasibility of wing-mounted refueling stores for multiple aircraft refueling. The aerial refueling systems advisory group (ARSAG) has the responsibility for coordinating systems improvements in A/R equipment (see article on page 10).

As pointed out in LCdr. Slowik's article, the importance of conscientious reporting of unsafe occurrences, whether or not they classify as mishaps, cannot be overstated. The Air Force has taken steps to expand statistical documentation of refueling mishaps. SAC is now counting drogue contacts and mishaps per contact. With accurate and complete reporting of refueling hazards and mishaps, safety staffs can build an excellent statistical record of interservice refueling problems. This will go a long way toward ensuring future hardware improvements.

The Air Force-Navy refueling problem is not going to go away. If anything, the Navy can expect more interservice tanking due to mission requirements and the decreasing supply of Navy tanker aircraft. Hardware improvements that will make Air Force tankers more compatible with Navy receivers are on the horizon but probably won't be seen in the Fleet for several years. But the mishaps don't have to keep occurring. Tanking from the Air Force should be approached as any other challenging mission. There may not be as much glory in a successful plug as there is in an OK 3-wire, but there is certainly no glory returning to the ship with a basket on your probe or a FODed engine, or failing to return at all. Be aware of the dangers, brief the mission thoroughly and demonstrate your best basic air work behind the basket. This, along with concerted staff efforts to enable regular practice plugs, should go a long way toward improving the combat readiness of Navy air crews. ◄

Cdr. Shipman, a reservist on special assignment with Approach, is an F-28 pilot with Piedmont Airlines. On active duty he flew A-7s and A-4s as a light attack pilot and flight instructor. He was editor of Approach from 1975 to 1977 and later worked as an aircraft accident investigator with the National Transportation Safety Board.

F-14 gets ready to fence with the BDA. LCdr. Dave Parsons

Fencing With the BDA

By LCdr. Robert L. Slowik

EVERYONE who really likes aerial refueling from the KC-135 boom drogue assembly (BDA), please step forward — at no more than 2 knots, please.* The rest of you, who may not be quite so excited about an intentional midair collision with a semirigid object, might be asking yourselves why we still have the thing around after 25 plus years.

Aviation folklore has it that our Air Force friends introduced the BDA to refuel their early jet fighters (F-84 and others) in the post-Korea era. This was concurrent with a similiar Navy probe and drogue refuelling development,

Early in-flight refueling experiment, 1923. USAF

which lent itself to installation on carrier based tankers (AJ-2 Savage) and buddy stores. SAC developed a boom system for its bombers which did not have the requisite maneuverability to "fence with the BDA." Eventually, the Air Force decided to go with the boom system for all its aircraft and kept the BDA for instances when Navy or Marine aircraft needed it. The BDA kit attaches to the end of the boom and was originally intended to have a short service life. They were to be removed from service when all Air Force aircraft were equipped with boom receptacles.

Today, since the "temporary" BDA fix was made of Kryptonite and mounted on a 9-foot hose made of reinforced Unatanium, it is now surviving its third decade of abuse. All this brings us back to the original question: Why do we still have this thing around?

KC-135 boom with F-16 approaching. Peter Mersky

Any Navy pilot who has fenced with a BDA is aware of its challenges. It is a hard basket that can damage probes, accessories and pilot egos. The basket is unlighted and through some wisdom that escapes us, painted flat black. The system has no advisory lights, so you have to talk to the boom operator to accomplish even the simplest refueling mission. Once you do successfully plug, it's even harder to stay in the basket because of its small refueling envelope. And everyone has heard about the way it can snap a probe in an off-center disengagement. So, what can the fleet do to help get it replaced?

You may find this hard to believe, but one of the main reasons we still have the BDA is that, statistically, it's OK. The statistics that Navy and Air Force purse-string holders use tell them that there is little justification for spending Gramm-Rudman-Hollings dollars to fix something that isn't broken, even if *we* know it is.

What stats do the bean-counters use to avoid spending money? They count aerial refueling incidents per flight hour.** No, not per refueling, or attempted refueling, but by flight hours for the KC-135! Yes, 600-plus KC-135s log a few flight hours in a year for Navy refueling, so you can see why the rate is fairly low. On the other side of the coin, how many Navy and Marine Corps units have failed to report an air refueling incident to keep from looking bad, or just because the mishap damage didn't cost $10,000 to fix? Even sending in a hazard report would have helped.

There have been efforts in the last two decades to install more compatible equipment on strategic tankers. Look at the KC-10, or scan it if you happen to be plugged in while reading this. The refueling capability of the KC-10 was born of documented needs by both Air Force and Navy receivers and is the product of dedicated military personnel and civilian contractors working together to produce the best equipment with funds available. Work is currently in progress to equip KC-10s with wing-tip mounted hose/drogue assemblies, and engineering investigations are underway to evaluate similar wing-tip mounted refueling stores on KC-135s. But where do

KB-29 refueling F-84G using probe and drogue in post-Korean era. USAF

you think all this good equipment falls in the Fiscal 1988 funding? Right! Somewhere below your next pay raise. The funding priorities assigned to fix programs that "aren't broke" are predictably low and will remain so until proper documentation is provided to justify the expense.

One leadership principle we've all been taught is not to complain about something without providing a reasonable solution (unless you're senior, of course). In keeping with the spirit and intent of paper work reduction, there is no recommendation forthcoming that would require submission of additional reports to some office in the second basement of the Pentagon. But there are reports in place that can, with very minor modifications, record both the number of aerial refueling attempts on the KC-135 and the times when things fail to go just right. Embarked, it is the CV Air Ops Summary. Ashore, it is the AIRLANT/AIRPAC Training and Readiness Report. In either area of operations, commands should document mission impairment or safety concerns by using the standard 3750.6 series mishap or hazard reports.

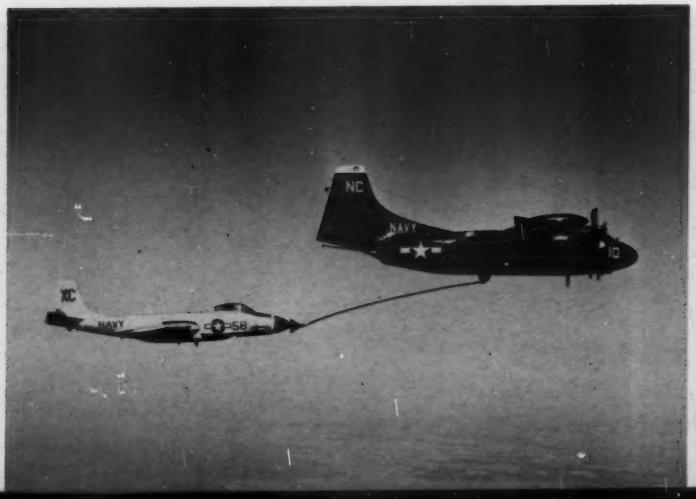
As Pogo said, "We have met the enemy and he is us." But we, the operators, can start documenting the problem with some candid, unemotional reports of air-refueling incidents. To track the number of KC-135 plugs, we must call upon the type commanders and fleet commanders to add minor additional reporting requirements to two existing reports. All this won't fix the problem instantly, but it's a way to get things moving.

*2 knots is the recommended closure speed when refueling from the KC-135/BDA.

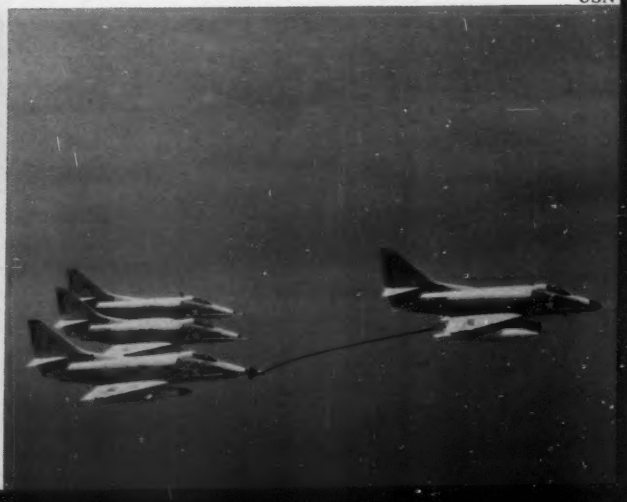
**See previous article "Plugging Air Force Tankers" for update on reporting methods for refueling mishaps involving Navy aircraft and Air Force tankers.

F-16 receiving fuel from KC-135 boom. Peter Mersky

AJ Savage refueling F2H Banshee using probe and drogue. USN

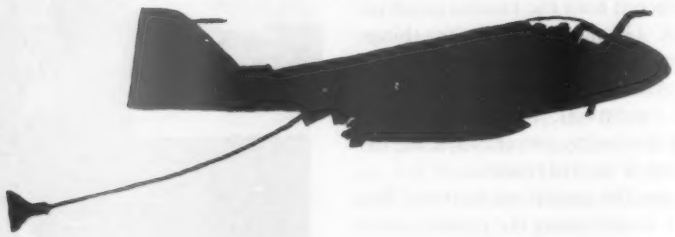


A4D Skyhawk using buddy-store to refuel squadron mates. USN



The Aerial Refueling Systems Advisory Group (ARSAG)

By LCdr. Terry Shoemaker



THE ARSAG was formed in 1978 to provide the Department of Defense with a single interservice agency dealing solely with aerial refueling matters. ARSAG is an advisory group for engineering, development and testing of hardware and procedures related to in-flight refueling. It also serves as a central coordinating body for its members to address existing problems or deficiencies in tanker and receiver systems.

In 1983 ARSAG became an international body as both Atlantic and Pacific allies joined the group. The major accomplishment of this international group was ensuring that hardware was designed to agreed-upon specifications and operational procedures were standardized. This was no small accomplishment considering the variety of tanker aircraft in use by the various countries: KC-97, KC-707, KC-135F, VC-10, KC-10, Toronado, Vulcan, Tristar and Buccaneer, just to name a few. This cooperative effort is covered under NATO STANAG 3101FS.

Some of the programs presently being addressed by the ARSAG include:

- Advanced aerial refueling requirement: high-speed (mach 1+) refueling, increased refueling rate, automated refueling.
- Aerial refueling formation and position methods: IFR refueling, refueling at night with night vision goggles, optimum lighting configurations.
- Continued and improved hardware standardization.
- Procedures and terminology standardization.
- Refueling mission essential requirements.

Points of contact for questions about aerial refueling or the ARSAG:
AFISC/SEFB: Major Ray Gordon, Autovon 876-3416
Naval Safety Center: LCdr. Terry Shoemaker, Autovon 564-3381

KC-135 refueling F-4 Phantoms using boom. Maj. Mike Steadman

KA-6D refueling F-14 Tomcat. LCdr. Dave Parsons

Not in NATOPS

By Lt. Paul S. Dillman

Not all emergencies are in NATOPS. There are a multitude of emergency situations you may face that aren't well-defined by the emergency procedures found in your NATOPS manual.

Here's a case in point. It was the first set of workups off southern California. The air wing was not into high tempo ops yet, just a few flights a day to get the rusty vets or nervous new guys used to the environment of the boat.

We were launched on a radar calibration mission to the southwest. The weather was normal: haze with moderate seas. With three handy diverts nearby, it looked like a fairly simple mission — go out one heading, come back on the reciprocal and get an OK 3-wire (cocky new guy).

It was a 1+45 cycle, so with plenty of gas, we sent out the assigned heading not really concerned with max trap fuel on the ball.

About 45 minutes into the flight, ECMO No. 3 noticed fuel dumping from the port wing dump vent. We immediately turned around, notified the ship of our predicament and began to worry. I pulled out the PCL while the pilot checked all his switches in the normal flight position. I knew there was not an exact procedure for this situation as I opened to the in-flight emergencies, but something is better than nothing. We reviewed all the checklists pertaining to fuel problems and selected those steps that, when combined with our knowledge of NATOPS, looked like promising choices.

The main choices were to select wing dump "on" momentarily, then "off" to try and regain control of the dump valve; positive and negative Gs to try and unstick the valve; and shutting off fuel tank pressurization to stop the pressure that may be forcing fuel out. None of these worked well enough to alleviate the problem. Gas was not yet critical, but the fuel quantity gauge was definitely the center of attention.

Strike asked us if we needed a pull forward. We answered "No, but first down would be nice."

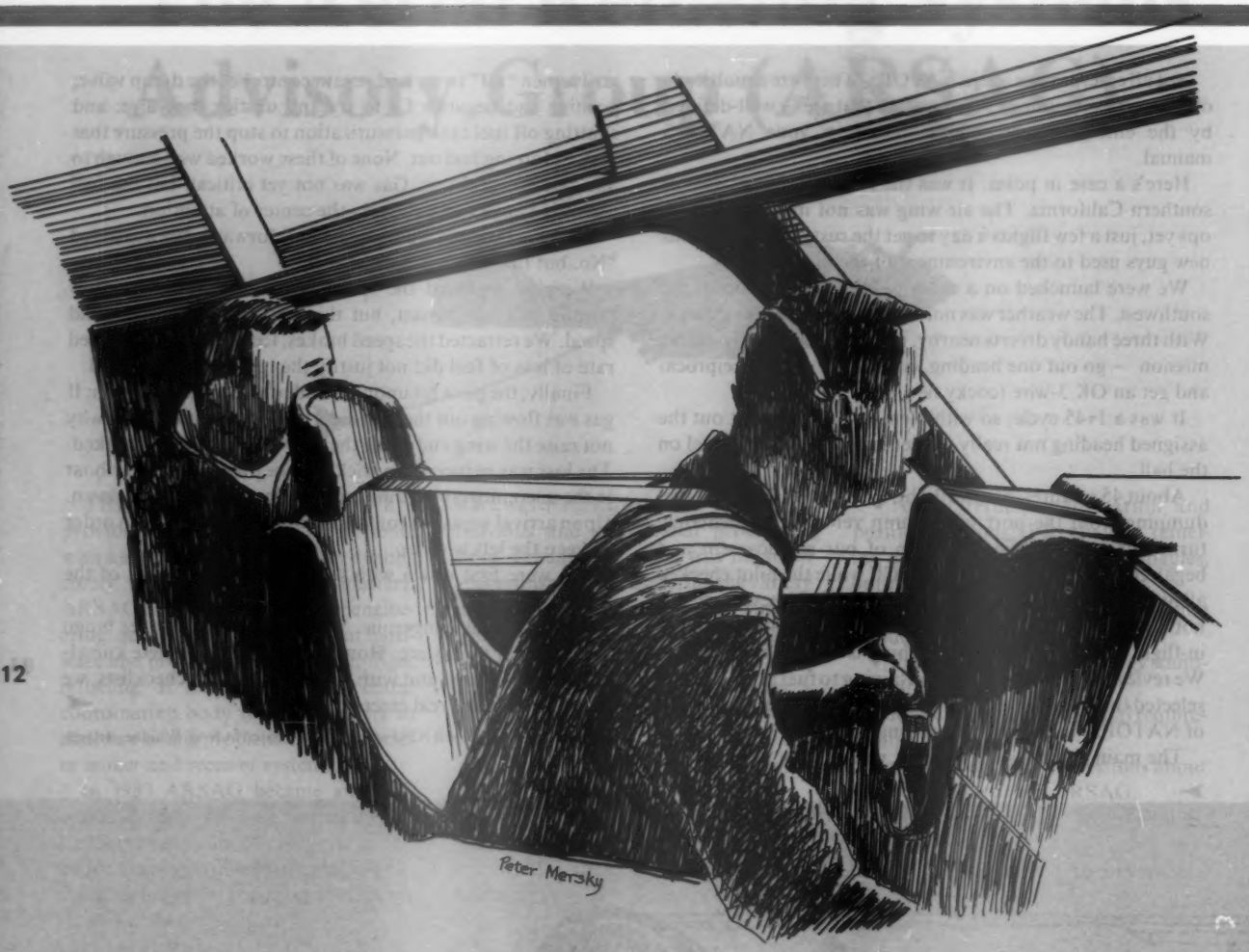
We also deployed the speed brakes to disrupt the flow around the dump mast, but this also reduced our ground speed. We retracted the speed brakes, feeling that the lessened rate of loss of fuel did not justify the loss of ground speed.

Finally, the pilot hit upon a wonderfully simple solution: If gas was flowing out the port side, and not the starboard, why not raise the wing and make the flow fight gravity. It worked. The loss was reduced to a trickle as we proceeded to the boat in the uncomfortable attitude of five degrees right wing down. Upon arrival we asked for and got starboard holding in order to keep the left wing up.

We were first down with 4.5 on the ball, instead of the normal 7.5 to 8.0.

It wasn't that dangerous. We landed with 2.1 over bingo and 2.0 over tank state. However, without complete knowledge of the system and with just the published checklists, we could have had a real emergency. ◄

Lt. Dillman is an EA-6B NFO with VAQ 130 based at NAS Whidbey Island, Wash.



Model NMACs. Near-midairs between military aircraft and model aircraft are being reported more frequently, especially in highly populated areas with active airports. The small size of the model is its secret weapon: By the time the crew of the *real* airplane realizes the little silhouette in their windscreen is not miles away, but perhaps only a few hundred yards (!), it is too late. Normal visual cues are useless.

A P-3 was in a landing pattern, on the downwind leg for touch-and-gos. Everything was normal, and a series of GCA approaches was conducted without a hitch. The tower cleared the Orion to switch from the left-hand runway to the right, which had a right-hand traffic pattern.

As the big turboprop maneuvered off the 180, the two pilots suddenly saw a single-engine aircraft model passing under the left wing with 50-100 feet separation. The model's wingspan was about 6 feet.

The PPC reported the near miss to the tower, which switched the pattern to left-hand turns. The P-3 began making its touch-and-goes on the left runway. However, on one of these circuits, as the PPC turned crosswind, he saw a different model passing within 100 feet of his aircraft.

The tower reported both incidents to the local police. The squadron involved has begun working with the NAS and local police to restrict model aircraft operations within the airport traffic area.

Safety in CNATRA. The atmosphere of the training command can be a special trap for the unwary and inexperienced. Special attention to the activities of the fledgling aviators and crews pays big dividends as noted by the following recent incidents.

AIR BREAKS

Two instructor pilots saved two TA-4Js, one on the ground and one in the air. VT 26's Marine Capt. John Pross, preflighting his Skyhawk's port engine intake, discovered a loose rivet that could have come out in flight and FODed the engine.

Lt. Duane Canon of VT 9 came out of the break, gear and flaps down for landing, when his T-2 suddenly rolled to the right. He countered with left stick and rudder and added power. A second roll to the right followed, and Lt. Canon noticed his No. 2 hydraulic pressure read 400 psi low. He quickly secured the boost and landed.

Postflight inspection could not conclusively determine the problem, but air in the boost package or hydraulic system was suspected.

Student naval aviators (SNAs) have also had their share of situations.

Ens. Robert Kanode of VT 27, on a FAM-14 solo, rolled out of a clearing turn at 6,500 feet MSL when he noticed torque fluctuating between 600 and 650 foot-pounds.

He began a climb and turned toward his home field, 30 miles away. The T-34C's torque fluctuations continued, eventually reaching a maximum of 1,250 foot-pounds. The SNA attempted unsuccessfully to retard power as he climbed to 10,000 feet.

When he was within power-off gliding distance of the field, Ens. Kanode was instructed to raise the aircraft's nose to reduce the speed to 150 knots and then lower the landing gear. With the gear down, he secured the engine and glided to a safe landing. This was the ensign's first solo flight.

VT 2's Lt. Mark Guidoboni and Ens. David Englehart were on a night nav hop. After an hour, they returned to the field for some touch-and-go landings. The first landing was normal, but when the power control lever was advanced for takeoff, the two aviators heard a loud whining noise and saw sparks coming from the engine.

Lt. Guidoboni took control and eventually slowed the T-34 with brakes, holding the aircraft on runway centerline until it came to a halt. Postflight inspection revealed a turbine blade had failed with resulting prop shaft separation and near-instantaneous loss of power.

TRACOM's enlisted personnel have been active as well. While performing a daily inspection of a TA-4J, AMSAN Darrel Boyer of CTW 2 spotted a cracked main landing gear actuator rod that had also separated from its mounting bolt. Airman Boyer's sharp eye prevented a possibly catastrophic mishap.

VT 25's ADAN Gilbert Feliciano, a member of the squadron fuel crew, saw sparks coming from a TA-4J during a maintenance low-power turn. The safety observer was called. He disconnected electrical power and shut down the aircraft. Inspection revealed a left-hand igniter lead with a hole in its base, directly over the fuel flow transmitter line!

With the continuing pressure to train and "produce" new aviators, it is always easy to overlook or ignore unsafe situations that can lead to major mishaps. With the cool response of professional, experienced instructors and capable students, and the meticulous attention to detail of the many ground crew members, the training command will continue to accomplish its mission, safely.

Hornet Pro. Flying at 500 feet over the water, at 450 knots, in burner, the Hornet pilot suddenly experienced a pulsating right engine followed by a fire light. The engine eventually flamed out.

The young pilot climbed, declared an emergency and headed for the nearest land. Following NATOPS, he lowered the hook to prevent the fire from melting the uplock release cable, which is routed through the right engine bay. He did not know that the nozzles, afterburner can and liner were gone, nor that the fire had already destroyed the hook uplock release mechanism.

Nearing NAS Far East, he performed an emergency landing gear extension, lowered the flaps to half, and asked the tower for an arrested landing. Although the winds were light and a straight-in offered the shortest approach, that direction did not have a properly rigged shortfield gear. The midfield gear was available.

The pilot weighed the options, since a hookskip at the midfield gear would mean having to make a single-engine go-around with less than 3,500 feet remaining on the 8,000-foot runway. He elected to go to the opposite runway, which had a rigged shortfield gear. He made a safe landing and arrestment.

Night Vertrep ITO Problems. The HH-46 crew hot-seated, took off and climbed to 125 feet AGL for a night Vertrep from a replenishment oiler (AOR). As he monitored the instruments, the copilot saw an engine anti-ice caution light illuminate.

The HAC adjusted the nose attitude to increase airspeed, and the copilot called passing 50 feet. The HAC noted the aircraft was 20 degrees nose down and the altitude rapidly decreasing. Both pilots initiated collective pull as the helo passed 25 feet.

The Sea Knight hit the water in a level attitude at approximately 60 KIAS and then became airborne again in a climb. The crew returned to the AOR. Postflight inspection revealed minor damage to the FM antenna.

The CO commented, "This crew forgot to 'aviate first.' Night ship ITOs have cost the Vertrep community dearly. We have had another reminder of how much concentration and coordination the night ship ITO requires."

Next Gas Station is 100 nm . . .

By LCdr. Skip Sayers

NAVAL aviation is full of catchy little phrases used to inspire good headwork and avoid trouble. For instance, "checking your six" refers to everything from air combat maneuvering to ensuring the preflight brief includes the divert weather. As a rookie naval flight officer in my first squadron, I received a lot of this guidance. I echoed it later as an F-14 RAG instructor.

It goes without saying that if you stay ahead of your aircraft and plan conservatively, most folks can avoid the pitfalls that become interesting reading on the message board. However, in my post-RAG squadron tour, my nugget pilot and I, despite our best efforts, almost became the subjects of a message board trilogy in a not-so-routine carrier qualification.

Bob had been one of my RAG students and was an exceptional pilot, with a gift for adapting quickly to the many sides of fighter aviation. Following a very successful Fleet Fighter Air Combat Maneuvering Readiness Program (FFARP), we eagerly anticipated the opportunity to bag traps in an air wing carrier qualification (CQ). During the CQ preparation we discussed all aspects of shipboard operations, from self-contained CCAs to hold-down fuels. When the time came to fly out to the ship I felt we were ready.

I conducted the afternoon preflight brief for the section. The weather was CAVU except for a cold front that wasn't supposed to arrive for at least eight hours. Bingo fuels and fields were discussed with the poor weather contingency in mind. The flight lead concluded the brief with some ball flying gouge and a caution to take things slowly on the flight deck. Considering that the ship had just completed an extended yard period and was overcoming a large turnover in flight deck personnel, caution was the watchword.

Turn-up, taxi and takeoff were uneventful, and on climb out I noticed some ominous clouds to the northwest. I mentioned this to Bob, who was concentrating on flying good parade formation. I also noted the failure of INS and updated the IMU to continue the mission. At the ship we were 85 NM southeast of NAS Southeast. Even though we managed to hit our overhead on time, it was no surprise to have marshal instruct us to "take high holding and max conserve." Bob made a few snide remarks on squadron tactical as we climbed to the overhead holding pattern.

For our aircraft configuration, max trap was 8,000 pounds (8.0), so fuel was not an immediate concern. After orbiting for about an hour we were finally called down, but deck time and daylight were both fading as the sun approached the horizon. Flying over the ramp at max trap, we accomplished our two daylight touch-and-gos in short order. On the third approach, Bob flew a nice pass to the sudden but comforting deceleration of the trap.

On deck with 6.5, it became apparent why things had taken so long. The flight deck crew was as green as briefed. They were working at a visibly reduced pace. We were spotted on elevator No. 2 to wait for our turn on catapult No. 1. With all of the takeoff checks complete, except wings, flaps and trim, we waited patiently.

We had been approximately 100 NM from NAS Southeast when the Air Boss called us down. During our stay in holding, Bob noticed the large wake behind the ship. We discussed the impact this would have on our abeam position but neglected to crank it into our divert equation. After about a half hour of sitting on the deck, I asked the Boss if we should refuel to max trap. With only 5.7 remaining and a hold-down of 4.3, we felt our opportunity to bag traps would be restricted. The Boss instructed us not to refuel and to expect vectors home following our catapult.

Considering all the delays we had encountered, our enthusiasm had faded a bit. We were now a little concerned with the prospect of an unplanned RON aboard ship. Additionally, with our fuel state, we could reach NAS Southeast and still go to our primary divert if required. The sun was on the horizon, and those ominous looking clouds in the west once more caught our attention. I gave departure a call to get pigeons and current weather. When the voice replied "320/100 NM and clear," I was suspicious, considering the preflight weather brief, but things were getting busy as we were broken down and directed to catapult No. 1.

The bingo fuel required for our 46,000-pound Tomcat to go 100 NM was approximately 3.3, including a 2,000-pound reserve. So with 5.2, we confidently headed for the cat.

It quickly became apparent that the cat crew, too, was experiencing some growing pains. Our first run-up was aborted because Bob rushed the flight control wipeout, and the troubleshooter did not see the port spoilers. The suspend procedures took longer than normal, and we were now at 4.7. The next run-up, too, was aborted for a catapult snag, leaving us with approximately 4.2. I considered a top-off now, but decided to give it one more shot as we were still 1,000 pounds above our 100-NM divert figure.

The third time was the charm, and once airborne, we immediately commenced a bingo profile climb on a heading of 320 degrees. Since the INS had dumped earlier in the flight, we put the pigeons on the nose. As we passed 17,000 feet en route to 28,000 feet, we got a TACAN lock on homeplate. Ouch! The DME indicated 157 NM instead of the 100 NM we

. . . We quickly reevaluated our fuel state and determined that we were roughly 700 pounds below the no-wind fuel figure. It was not time to panic yet, but I did have a sinking feeling in the pit of my stomach . . .

LCdr. Dave Parsons

expected. We quickly reevaluated our fuel state and determined that we were roughly 700 pounds below the no-wind fuel figure. It was not time to panic yet, but I did have a sinking feeling in the pit of my stomach.

We continued our climb to 34,000 feet and decided to press on toward homeplate, where we would make a "quiet" and uneventful landing with 1,400 pounds of fuel.

On check-in, Giantkiller informed us that the field had gone IFR, and we could expect holding at the initial approach fix. This was confirmed as we were handed to approach control who was in the process of directing a flight of four aircraft to the stack at the initial. I informed the controller that we were "minimum fuel" and could accept no en route delays. With a knowing "Roger," he said we could expect one turn in holding.

It was time to come clean, so I declared an emergency and requested priority handling. The controller was understandably upset but handled the situation very professionally.

Approaching our pushover point, we did a ground-speed check and found that we had about 70 knots of wind on the nose. Re-thinking our bingo profile, we decided not to push over until reaching 75 NM. To say the least, we were both very uncomfortable, looking at 1.7 with 85 NM remaining to an IFR field. I calculated that we would have approximately 900 pounds of fuel remaining upon landing. Considering that roughly 400 pounds of fuel is trapped and unusable, the pucker factor became significant.

At 75 NM, we began our descent, and Bob placed the throttles at idle. For the next 15 minutes we flew 200 KIAS and agonized over the dwindling fuel. Fortunately, the idle descent worked as advertised, and following an ASR to runway 32, we rolled out with 700 pounds remaining!

This was much too close for me, and I gained a few more gray hairs in the process. In retrospect, we had several opportunities to avoid this experience. We could have dramatically changed our circumstances by paying closer attention to ship's course and speed, questioning the accuracy of departure's pigeons/weather or insisting on a top-off before our catapult shot. We also should have declared an emergency as soon as we realized we had to fly a bingo profile. The lessons Bob and I learned that day are not new, but are extremely important and now permanently etched in our minds. Staying ahead of your aircraft and planning for contingencies (checking your six) can carry you through the hours of routine flight and help you avoid those moments of stark terror. ◄

LCdr. Sayers was a RIO in VF 102 when he wrote the article. He is now a detailer with NMPC in Washington.

. . . My introduction to the fleet was driving the point home hard. Blue water ops, EMCON, lousy weather and a seemingly unconcerned ship. Seems like no one's your friend out here.

The Unfriendly S

By Lt. John A. Stagliano

JUST an average day in WESTPAC. A 0900 brief for an 1100 go, 4½-hour CAP mission. Considering our location, it promises to be an exercise in boredom and fuel management. Being scheduled for 9,000 pounds of gas from two tankers gives us a warm fuzzy, but schedules are bound to change, and max flex is always the name of the game.

Case I, modified EMCON launch. Checking in with Strike, we're switched to E-2 control and assigned CAP station 36B. After plugging an A-6 for 2.5K, we proceed outbound with a full bag of gas. Now we have four hours to hang on the blades, needing at least 4.0K pounds of gas to arrive on the ball with 5.0K as per air wing SOP.

Arriving on station, we set up a race track pattern and check in with E-2. No contacts, but some heavy weather is closing in from the north and the east.

At 1230: "Control, 200 is scheduled for 5.0 from 5E2. Interrogative, Texaco available?"

"Roger 200, will advise."

At 1240: "200, Control. Be advised no Texaco available."

"Roger, 200 will require minimum of 4.0 to make assigned recovery. Otherwise, request 1430 recovery."

"Roger 200, we'll pass that on. Your signal — max conserve."

No kidding. Here we go again. Remember what they told me from day one. "They're all trying to kill you." Little did I realize the truth to that. My introduction to the fleet was driving the point home hard. Blue water ops, EMCON, lousy weather and a seemingly unconcerned ship. Seems like no one's your friend out here.

At 1330: E-2 Control checks our state and informs us gas is still not available.

Great! Thunderbumpers up to 35,000 feet are pushing us back to 36A. The weather between us and the ship is looking marginal. The INS seems to have drifted considerably, but with a good radar picture, I update our position.

At 1400: "Control, 200. Recommend we return overhead for 1430 recovery. State 9.0."

Our controller asks us to stand by while he checks with Strike. He relays the good news for us to switch Strike and expect a 1430 recovery.

"Strike, 200, north at 25. State 9.0."

"Roger 200, Say your intentions."

"200, expecting this recovery as informed by our controller."

"Stand by."

Strike directs us to recover at 1530. Having gone through the calculations enough times, I immediately reply that, unless there is Texaco available now, I should recover on the next recovery. "Stand by," they reply.

"200, Strike."

"Go ahead."

"Say your state."

"8.0."

"I show you on the ball with 3.0. Do you concur?"

"Concur."

"Roger, that's charlie fuel. Any problems with that?"

"No sir."

Here we are, holding overhead at 35,000 feet due to weather. The ship is currently in the clear, but on its present course, it will be in an area of cumulus build-ups to 35,000 feet within 20 minutes. Giving Strike a PIREP, we recommend a southerly course; otherwise, it will be case III for the 1530 recovery. Fortunately, there's a Tomcat in low-holding reporting the weather clear below 8,000 feet. Maybe we'll recover case I after all.

At 1500 we're switched to marshal and told to proceed inbound. We inform marshal that we're overhead at 35,000 feet above the weather. They're calling for a case I recovery. We decide to stay where we are and wait for the Tomcat in low-holding to give us a call, then commence an idle descent when the deck is about ready.

Commencing an idle descent at 1520, state 3.6, marshal switches us to departure for tanking overhead, angels 5. Passing through 7,000 feet, we're still in the goo. At 5,000 feet we finally break out and get a tally on the ship. Of course, it's heading for a rain squall. It takes two laps around the circle before we find the tanker, and by the time we plug, our state is 2.0. Sure hope he's sweet. Green light, good flow. Whew! We tank up to 6.0 just to be safe. We're switched to tower and given an immediate charlie. We do a Sierra Hotel break to an OK 3.

Happy ending, but it could have easily been different. We *could* have landed with 2.5, but air wing SOP required 5.0 on the ball. Why? The ship *could* have gone case III and, due to EMCON, become difficult to find due to an inaccurate navigational system. The deck *could* have gone foul prior to our recov-

ery due to a blown tire on touchdown or an aircraft stuck in the gear. The signal for delta 10 at that low a fuel state could be costly. After all, how accurate are those fuel gauges? I don't want to find out.

We helped ourselves (or tried) by making our fuel situation clear from the start. But we allowed the ship to talk us into "hacking it." That could have come back to haunt us. Our PIREP was timely and accurate from our perspective, but fortunately, the weather remained case I. An idle descent was executed with good timing, thanks to the assistance of another aircraft with better knowledge of ready deck status.

What was the purpose of holding us on CAP while in such a fuel-critical state? That question should have been asked but wasn't. If we'd received Texaco earlier we would have been a CAP asset, but without additional fuel, our interceptor role was severely limited. We could not have vectored for a bogey at that fuel state.

"Texaco's on its way" means "check's in the mail." When we finally received directions to tank at a state of 2.9, we used precious fuel to rendezvous that would have been sorely needed had the tanker been sour.

From every flight, there are always lessons to be learned. In the unforgiving, blue water carrier environment, there are enemies all around. Some you'll find where you least expect them. Check Six! ◄

Lt. Stagliano is an F-14 RIO deployed in WESTPAC with the VF 111 Sun Downers.

Skies

Transoceanic Ordeal Revisited

By Maj. Joe Homer, USMC (Ret.)

"Transoceanic Ordeal" by Capt. Rob Coopman, USMC, (Approach, Winter 1986) proves that nothing can be taken for granted in aviation. It also shows that despite this modern era of space-age, micro-computerized high-tech equipment, Murphy's Law still prevails. I had a sense of déjà vu when I read Capt. Coopman's article. Nearly 30 years ago, I also was in an A-4 (A-4B, nee A4D-2) squadron, also out of MCAS Cherry Point, and also on a transoceanic adventure.

It was in May of 1959 when VMA 332, the lengendary *Polka Dot* attack squadron of the 2nd Marine Aircraft Wing was about to embark on a precedent-setting mission that would soon become routine.

Led by the commanding officer of Marine Aircraft Group 24, Col. H.G. Hutchinson, and the commanding officer of VMA 332, Lt.Col. J.B. Mass, 13 A-4s departed MCAS Cherry Point for NAS Rota, Spain, via NAS Argentia, Newfoundland. Eight of the A-4s had three 300-gallon external tanks; five had two 300-gallon external tanks plus one 300-gallon buddy store. The mission was to fly nonstop from Cherry Point to Argentia without refueling, wait 36 hours, then fly eight aircraft in two-division increments to Rota, using the five other A-4 buddy store aircraft for refueling approximately 250 nm southeast of Argentia. Once refueled, the first four topped-off Skyhawks would overfly the Azores and land in Rota some five hours later. The five tankers would return to Argentia, refuel and launch again four hours later with the second division of A-4s, following the same procedures.

There was a lot of professional time spent on fuel, time-distance figuring, flight profiles, flight physiology, water survival techniques, et al. The only real question marks were the durability of liquid oxygen and oil systems of our A-4s. From start, taxi, takeoff, cruise to landing, the approximately six hours of flight time would tax both systems, leaving very little room for error. A leak or delay could have spelled disaster.

VMA-332 A-4D Skyhawk. USMC

Our only means of navigation were an archaic TACAN, the UHF radio with ADF homing capability and a prototype doppler NAVAID that no one really understood because of the lack of instruction and maintenance manuals. Although there were no "Pathfinder" aircraft available in those days, Navy ships, R7V (C-121) and R5D (C-54) aircraft were positioned to serve as "Duckbutt" navigational and rescue assistance facilities along the route. Due to the limited range of the A-4's radio and NAVAIDS, the vast portion of the journey for the pilots was on their own: dead reckoning, pointed in a southeasterly direction for five hours and looking for a place to land — hopefully, Rota.

The weather en route from Cherry Point to Argentia on the first leg was CAVU, as it was the next day, which was a day of rest. The flight surgeon's orders were to have proper rest and diet prior to extended flight ops. However, the day of the scheduled launch into history was at the other end of the environmental spectrum — WOXOF! All of Newfoundland and for miles around was socked in and would remain so for two to three days. On the fifth day, a slight break in the weather (200 and ½ max) allowed the first division and five tankers to launch. An hour later, despite a forecast to become "partly cloudy," three to five miles vis, the five tankers returned to Argentia in deteriorating conditions. No sooner had the tankers landed than the weather went WOXOF again for three more days, thereby precluding the second division's launch for Spain, that day, or forever.

The four A-4s now en route to Rota were unaware of the weather situation facing the five tanker pilots returning to

A4D Skyhawk refueling fellow Skyhawk using buddy store. USMC

Argentia as well as the scheduled follow-on division. These returning pilots were headed back to WOXOF conditions with no other place to go. Gander, Goose Bay and St. John's were all WOXOF. Despite the odds facing them, the pilots flew perfect GCAs in less than marginal conditions. Enough was enough, according to the powers that be. The remaining A-4 pilots were told to make plans to return the next day to MCAS Cherry Point where the squadron was preparing for a 15-month Far East tour.

Back to the original four A-4s en route to Rota. One A-4 pilot had refueling problems and followed the tankers back to Argentia. That left three en route to Rota. The three continued southeastward toward the Azores, when one was beset with oil problems and diverted into Lajes AFB without further complications. Now, there were two and they still weren't aware of the plight of the boys back in Argentia. They assumed that the second division was only four hours behind them.

Undaunted, Col. Homer Hutchinson, and Capt. George Bailey, landed in Rota as planned, five hours and 10 minutes after takeoff, thereby setting a record for jets flying nonstop across the Atlantic, using the buddy store refueling system. Two A-4 tankers remained in Argentia for the return trip of the three A-4s from Rota and Lajes, should they require refueling out of Lajes. As it turned out, the two translanted A-4s left Rota and landed in Lajes, picked up the repaired A-4 and flew to NAS Bermuda, where they refueled and departed for MCAS Cherry Point. The two tankers left behind in Argentia then returned to Cherry Point via NAS South Weymouth, Mass. Total elapsed time was nearly two weeks.

Who says flying ain't fun?!

The author was one of the two tanker pilots left behind in Argentia. What transpired during the waiting period up there remains a secret of sorts, known only to the author.

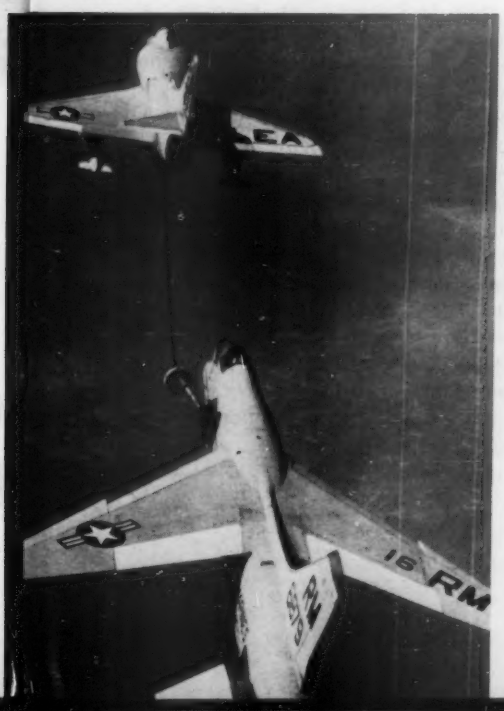
Maj. Homer retired from the Marine Corps in 1977, having accumulated 4,000 hours flight time. He worked as a writer for Approach magazine from 1978 to 1980. He is now deputy director for physical security for U.S. Atlantic Fleet/U.S. Atlantic Command.

VMA-332 A-4D Skyhawk. USMC

. . . Little did anyone know that these returning pilots were headed back to WOXOF conditions with no other place to go except Argentia. . .

Col. Hutchinson, one of two pilots who made the 2,270-mile journey, is greeted upon his arrival at Rota. USMC

Marine A-4D tankers were the duty gas station in the sky for a variety of aircraft such as this F-8U Crusader. USMC



LCdr. Nick Johnson
VFA 303

Shortly after takeoff from NAS Lemoore, LCdr. Johnson raised the gear handle on his F/A-18 Hornet. As the gear began to retract, he heard an uncharacteristic loud "clunk" and noticed the right main mount had not retracted. While reducing power to avoid accelerating through gear speed, the hydraulic system 2A caution light illuminated, indicating a utility system hydraulic failure. As a result of the failure, the left main returned to ▮ down and locked indication. The nose gear remained up and locked. Activating the emergency gear extension system extended the nose gear. Having completed every detail of NATOPS emergency procedures for a hydraulic 2A failure, LCdr. Johnson confirmed three down and locked, and set up for an arrested landing.

A perfect approach and landing were spoiled when the hook skipped the arresting gear cable and the aircraft immediately started a severe left drift. LCdr. Johnson immediately selected afterburner on both engines and applied full right rudder, managing to get the aircraft safely airborne just short of the left edge of the runway.

An F/A-18 planing linkage malfunction had actually occurred without any cockpit indications. Only pilot skill, immediate response to an extreme situation, and excellent command of NATOPS procedures in a multiple emergency situation allowed LCdr. Johnson to avoid an aircraft mishap. The next approach resulted in a successful arrested landing.

Postflight inspection of the port main mount revealed characteristic planing linkage failure: wheel misalignment and damage to the linkage. In addition, the brake assembly had broken in half. In the process, it had caused the planing link sensor to fail in the "normal" position, which in turn masked any cockpit indications of failed linkages. ◄

BRAVO ZULU

Lt. Bruce Pommer (left)
Lt. Benito Loyola (right)

Lt. Bruce Pommer
Lt. Benito Loyola
VA 85

After preflight and start, Lt. Pommer (pilot) and Lt. Loyola (B/N) taxied their Intruder to cat 1 for launch from USS *Saratoga* (CV 60). At the end of the stroke, the left fire light illuminated and the aircraft yawed. Lt. Pommer immediately raised the gear, jettisoned the external stores and isolated engine bleed air. He commenced a climb, secured the left engine and began the slow process of dumping fuel. (The A-6 loses one of its two dump pumps when single engine.) The fire light did not go out. Lt. Loyola declared an emergency and told the ship they needed to land as soon as the aircraft's gross weight was within single-engine approach limits.

The crew continued their Case III climb through rain and turbulence, attempting to find VMC, with assistance from departure control. Weather was 400 overcast, one mile visibility in heavy rain. Passing 10,000 feet, still popeye, and 19 miles from the ship, they lost all communications. Lt. Loyola tried departure, tower, approach, strike and guard frequencies, but did not regain communications until they returned to within three miles of the ship, utilizing the TACAN. They leveled at 12,000 feet in solid IMC, which precluded a join-up for a visual check.

The A-6 was then vectored for final approach, Lt. Pommer's first actual instrument CV approach. A Mode IIT was flown to one mile where

they established Paddles contact. Windshield air was activated, but due to the heavy rain, Lt. Pommer remained clara until inside one-half mile. The squadron tower rep recommended reenergizing the windshield air with the engine bleed air valve.

Lt. Pommer flew the remainder of the approach to a pitching deck OK three wire.

Ed. Note: Lt. Pommer was lost in an aircraft mishap on 20 March 1987. He will be remembered as a skilled aviator and a valued shipmate.

1st Lt. Clyde Woltman, USMC
VMAT 102

While on an aerial refueling hop, 1st Lt. Woltman engaged the KC-130 drogue and received 5,000 pounds of JP-5 in his A-4M Skyhawk. Following a normal disengagement at 15,000 feet, he prepared for several dry plugs. Although closure and engagement were normal, his next plug caused immediate failure of the refueling hose at the reception coupling, leaving the basket and the ejector spring attached to his probe.

As remaining fuel in the hose streamed down his right intake, 1st Lt. Woltman performed emergency breakaway procedures just as his engine flamed out. NATOPS procedures produced a successful relight, accompanied by severe compressor stalls and flames from the exhaust and intakes.

Retarding the throttle cleared the compressor stalls, and 1st Lt. Woltman turned toward NAS Fallon. With the ejector spring dangling only inches from the right intake, 1st Lt. Woltman executed a precautionary approach, securing the engine as he cleared the runway.

From left to right,
Lt. Gerald J. Voorhies
Ens. Gordon D. Peters
AW2 Charles R. Priestley

Lt. Gerald J. Voorhies
Ens. Gordon D. Peters
AW2 Charles R. Priestley
HSL 32

Invader 135 completed a hot refuel cycle on board the USS *Jesse L. Brown* (FF 1089), and launched for a night ASW sortie. At approximately 20-25 nm, the caution light panel flickered showing a fuel boost problem and then extinguished. Lt. Voorhies (HAC) took control, reported the problem to his ship and turned toward homeplate. Ens. Peters (CP) broke out the pocket checklist and started going through the appropriate emergency procedures. AW2 Priestley made ready all gear for a possible ditching. The ship closed the aircraft's position.

At 18 nm the No. 2 engine fluctuated once (a 50 percent drop), regained its power output then completely flamed out. Restart attempts were unsuccessful.

At 5-10 nm, with the ship in sight, all ordnance was jettisoned, excess fuel dumped, and the ship turned to the best wind recovery course.

Superb airmanship and coordination between air crew and the ship's crew resulted in a successful *night*, single-engine, small-deck landing.

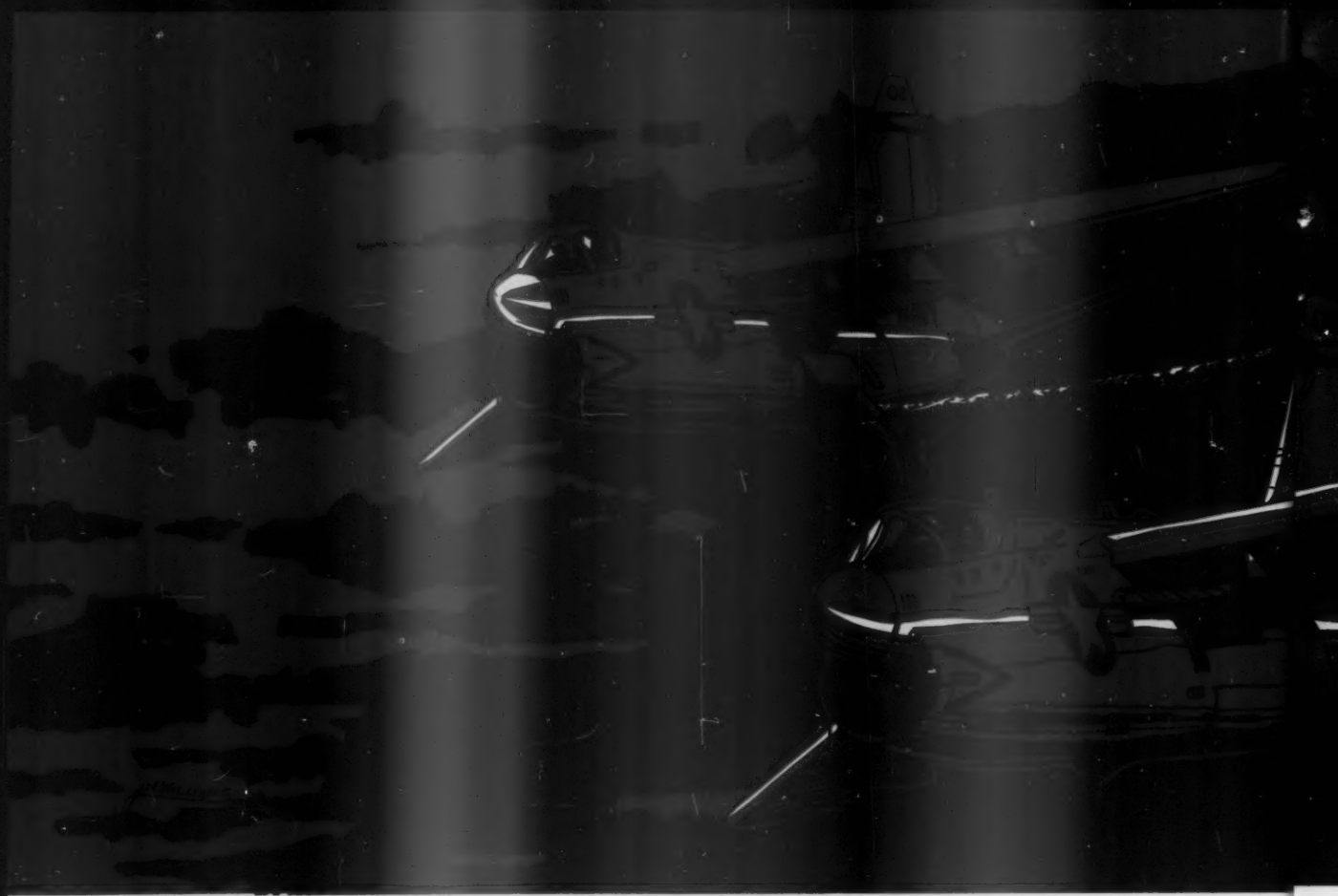
Occasionally, we get inquiries as to the derivation of the Bravo Zulu feature, as well as the meaning of the term "Bravo Zulu." Bravo Zulu, the precise meaning of which is "Well Done," was apparently first used during World War II, perhaps by Admiral Bill Halsey himself, although the exact date and circumstances are lost. BZ is a category of the signalman's terminology called a "governing group," and is used to set off a group of data or messages which follow the BZ.

Every service safety magazine has its own laudatory feature, and Approach used a succession of titles before settling on Bravo Zulu. The first was "Old Pro," followed by "Good Show" (the British use a similar title), then "Well Done." The first Bravo Zulu appeared in the February 1972 issue of Approach and has become a regular feature of the magazine ever since.

If you want to submit a BZ nomination, here's how.

The nomination must be submitted through the commanding officer of the squadron, chopped through the appropriate air wing, MAG or PATWING. A 5-by-7 black and white photo of the air crew involved should also accompany the story and endorsements. Photos of the event are always welcome, such as a barricade arrestment or landing approach. Views of damaged equipment, i.e., canopies, tires, are also important.

Send the nomination to: Editor, Approach Magazine, Naval Safety Center, NAS Norfolk, VA 23511-5796.



By Lt. D.J. Delancey

"WHERE'S the field? I can't find the field!" I searched the horizon frantically, trying desperately to pick out a runway in the haze. Nothing. It had to be there somewhere. The TACAN needle allegedly pointed the way. I glanced anxiously at the fuel gauge. As I watched, it rolled back another few hundred pounds and continued its downward plummet. The low-fuel light came on. "I'm not going to make it, not at this rate." I was so sure that I took my kneeboard off and got ready to punch out.

The day hadn't started out this badly. It had been perfect, in fact, until just a few minutes before, with beautiful spring weather. The flight lead and I had briefed a few hours earlier for the kind of hop that makes up for all the pitching deck night recoveries at the ship. We'd been scheduled to fly close air support with an Air Force FAC against live Army troops and tanks. Realistic training to be sure. The workload in an A-7E never gets higher than when you try to work out timing; look for bogies; deal with comm jamming, camouflaged targets and simulated missile shots, all at 200 feet. But is it ever fun. At least it was until my last run.

I came in on that run, low and fast, just like the others. I thought I saw the target up ahead. Yes, that was it, two tanks nestled down in a little ravine. I popped left and up to give myself an offset. Rolling inverted, I pulled the aiming diamond to the tank on the left and designated for a simulated bomb delivery. I still had plenty of knots as I pulled the nose right and jinked away. I started with a good solid six Gs for the 180 degrees of turn I had to go to hit my egress heading. Unfortunately, I hadn't gone 30 degrees of turn before the airplane made a very distinct "whump" and started to slow appreciably. My immediate thought was that I had some kind of compressor stall, so I yanked the throttle back, leveled my wings and climbed. As I scanned the engine instruments for anything unusual, I distinctly remember someone on the ground calling a missile shot on me. Ha — that was the least of my worries.

I couldn't figure out what was wrong. Each engine instrument was completely within limits. Cautiously, I advanced the throttle to preserve my now declining airspeed. It seemed to work just fine. What was wrong? I couldn't figure it out, so I started to climb and point the nose toward home, some 130 miles away. Something was not right. Then the landing gear indicators caught my eye. Aha! The right main mount and nose gear indicated up just as they should, but the left main mount showed a down and locked indication.

When I thought about it, maybe I did notice some yaw in that direction. The flight lead was closing to join up and check me out. I slowed to gear speed and asked him what he saw.

One Down and Locked

Yes, the left main mount did appear to be down. At least it indicated locked. I hoped the others would come down as advertised, and it wouldn't be such a big deal after all. I looked at my gas — 4,700 pounds, plenty to make it home, even at 240 knots. No problem.

The lead was just calling Center to get us some return routing when I checked the gas again. I couldn't believe it —2,900 pounds? I'd used almost 2,000 pounds in five minutes? Not likely. I took the lead and asked my friend to look again, this time for a fuel leak. Of course, the answer was yes. I was leaking a steady stream from my left wheel well. Now my mind was going a mile a minute. First, what if that fuel caught fire? NATOPS has a single word emergency procedure for a wheel well fire: eject! Why? Because these great big old fuel lines run through the wheel wells.

OK, got to find a place to land. No big decision there, because our primary divert was only 30 miles away. I turned right. What was that TACAN channel again? I couldn't remember. Look in the book. Better ignore the gear speed and kick the power up. Better to burn the fuel than piss it away. But what if the engine flames out because the leak wouldn't let the system keep up with the demand. OK, compromise. I wish I knew something about what lines went where. What do I do if the other two gear don't come down? Look in the book, stupid. Going to have to trap anyway because all I have to do is overheat that left brake a little too much and we're back to a wheel well fire. Great.

By then I was at 3,000 feet AGL, 350 knots and 15 miles from the field. I had 1,700 pounds of gas. Thank God my wingman had made all the radio calls for me. I was so busy I'd pretty much forgotten which button to push to talk. Ten miles, eight . . . I couldn't find the field. The low-fuel light came on at 1,200 pounds. (This is where we came in, remember?) I took my kneeboard off. Six miles.

Suddenly from behind a ridge, there it was! OK, start to slow down. Cleared to land runway 21. Which direction is that? I'm already lined up on it? Thank God, I need all the help I can get. I sure hope the other wheels come down. Here goes nothing. Clunk, clunk. Three down and locked. Unbelievable. Wingman reports the gear look good.

OK, now you're high. Wow, you're really high. Stuff the nose. Throttle to idle. How far down in the arresting gear? What if I hook skip? Run off the other end and never touch the brakes? No dummy, raise the hook, relower it and catch the long field gear. Oh no! The hook. I forgot the hook! OK, hook down. One hundred feet to go. Fifty. Touchdown. The gear held. Here comes the arresting gear. Set the hook. Easy! You're still real fast from being so high. Don't want to lift off over the gear. I'm slowing! Can my exhaust ignite the fuel leak? Lucky again. Fire trucks. Foam all over the airplane and runway. I like that. Canopy open. Step over side. Aaah! No steps! Flat on my face in the foam. At least my LPA hasn't inflated. Pick myself up. Still in one piece? I guess so. Firemen laughing at me. What a day!

They found the left main mount uplock torque tube had sheared. The wheel fell into place, down and locked, but the broken torque tube sheared a 3-inch fuel line. Why the failure? There was no record or sign of human error. I was real lucky. I had a knowledgeable and competent flight lead for guidance. I was only 30 miles from the divert, not 50. The other wheels came down when I asked them to. The weather was good. Lots of things went right. But what if a thunderstorm had been sitting over the field? What if the TACAN hadn't worked? What if I hadn't had a usable HUD to help me with the landing corrections? What if I'd been alone? Just little things, you know, but they can add up. What if?

Lt. Delancey is assigned to VA 146.

Wake Island Commando

By Lt. Stephen McCaslin

I was scheduled for the alert tanker with a cruise-experienced pilot (not my usual one, though). I knew we'd probably launch, as the "Bears" were coming out to take a look. Sure enough, the 1MC sounded: "Now launch the alert tanker." My pilot and I headed for the flight deck, and our KA-6D was airborne in 20 minutes. We checked in with our controller who told us to proceed north. Once established at 20,000 feet, we began figuring how much fuel we would retain for our return.

We figured out a minimum fuel state and kicked back to enjoy our flight. Once on station we were met by an F-14. We passed him about 6,000 pounds then kissed him off.

Almost immediately, we were vectored east for 80 miles to tank another F-14. It wasn't long before we were joined and giving him the rest of our give. Now finished with our mission, we told our controller we were a "dry" tanker and were returning to the ship.

We headed south southwest and figured we were about 200-215 miles out. Since the ship was in EMCON, we relied on our Omega. We had 9,000 pounds of fuel, and once again, we kicked back to enjoy the flight time. After 10 minutes, I called the ship's controller and asked him to give us a vector.

"514, your vector, 148 degrees for 188."

My pilot and I looked at each other and shrugged. It was then that I compared the HSI with our wet compass. It was 40 degrees off. I told the pilot and resynched the HSI.

I knew we were near Wake Island so I dialed in the TACAN, and the needle pointed 100 degrees for 45 miles. I then asked the ship to update our vector.

"514, your vector, 133 degrees for 133 miles."

I asked them to verify radar contact, and their reply was "yes." Something didn't feel right! I figured we were about on the ship's 020 for 140 miles. Well, if our compass was off 40

degrees for a long period of time (I never checked it), maybe we **were** where they said we were.

Since we thought we were under positive control, we descended to 10,000 feet. I rechecked my Omega steering to our launch position, and it was close to my own mental DR plot. But, hey, the ship said they had us. Obviously my mental plot was wrong. We motored on for another five minutes, and I again asked for an update.

"514, your vector, 135 degrees for 88."

Now I began to get uncomfortable. Our fuel was down to 5,500 pounds. When I asked again if we were in radar contact, the ship said, "Negative radar contact." My pilot said, "To hell with this" and started climbing. I had dialed Wake Island into my Omega and decided to see what it said. The needle swung and pointed at 350 degrees for 225 miles. We turned our aircraft toward (our best guess) Wake Island and told the ship we were minimum fuel and were on a bingo to Wake Island. After leveling at 36,000 feet, we spent the next 15 minutes trying to establish our position. Attempted DF cuts and the ship turning its TACAN up to full power were not successful. The one thing I never tried was trusting my own DR plot.

The Omega was good enough to get us within TACAN range of Wake Island, and we began our descent. Our fuel was down to 2,300 pounds and we were still more than 100 miles from Wake. My pilot and I were quiet now. I was thinking about ejection procedures.

On our descent, our canopy defog decided to malfunction, and sure enough, our canopy became covered with condensation. We ended up with having to use a cloth bag to keep wiping the canopy and made a big play for the runway to land. After landing, I unstrapped, stood up and played traffic director all the way to the line.

I learned quite a bit from this hop, and I'll let all you ready-room cowboys critique it yourselves. The biggest bit of knowledge I gained that day was to trust *and maintain* a mental "DR" plot. If I'd trusted mine, it would have saved a lot of embarrassment. This wasn't the only time a controller had tried to make me swim, but I keep my own "DR" plot going to save myself. The "old salts" always say "they" (anyone other than yourself) are out there trying to kill you, and the more I fly, the truer it seems to be. Keep your situational awareness about you and don't blindly follow a vector.

Lt. McCaslin, a B/N in VA 95, has completed two cruises aboard USS *Enterprise* (CVN 65).

MAYDAY! MAYDAY!

Capt. Dennis Brooks, USAF

By Capt. Gary C. Byrd, USAF

OUR day had started calmly enough with a decent wakeup time and a van ride from our motel into El Toro MCAS, Calif. Next on the agenda was a briefing with our Marine A-4 receiver pilots and preflighting our KC-10.

We were tasked with qualifying the Marines on the KC-10 drogue before another of our aircraft from Seymour Johnson arrived at El Toro to help us drag them across the Pacific to Iwakuni, Japan. It was one of those TDYs you usually dream about.

The briefing was thorough, and our receivers were eager to get a fast ride across to Japan with a KC-10 versus a slow ride behind a Marine KC-130.

We took off first and established our orbit in AR 651 off San Diego under GCI control. Beaver Control monitored our first group of five A-4s as they came down track. We did a point-parallel on them and all went well. Three of the five departed from us out the top of the block when they were done, leaving one on the hose and one in the observation position on our right wing.

We heard our second flight of A-4s report in with GCI, and we advised them to stay well clear off our right wing until the remaining "chicks" from the first flight left. Our copilot checked their position visually out of his window and mentally noted how sharp their formation of aircraft looked. He counted four A-4s and minutes later another one joined the flight. The airfield was IMC, and number four of their briefed five-ship had to get a tumbling attitude indicator fixed before he could take off.

The copilot continued to monitor the rejoin by glancing over his shoulder every few seconds. We now had a complete formation on the wing. On their FM interplane frequency, the second flight was coordinating a position change to get aircraft four and five back into their briefed positions.

The next time the copilot looked over at the flight, he saw a tanker pilot's nightmare; four and five hit each other with such force that the nose broke off one of the aircraft. One pitched full nose up and the other went nose down. As the two Marine aircraft slowed from the terrible G-loading, the copilot saw one jet engulfed in flames. It looked grim.

As the wreckage was dropping down and aft of us, we told our boom operator that we had witnessed a midair and to have the two A-4s he was controlling hold their positions. Our pilot punched "position hold" on our No. 3 INS to mark the precise latitude and longitude of the mishap as the copilot keyed the GCI frequency.

"MAYDAY! MAYDAY! MAYDAY! Beaver Control, Casey 10, there's been a midair; we have two A-4s down! We need you to coordinate for search and rescue."

We noted our position, airspeed, altitude, heading, winds at altitude and that we were picking up two distinct ELTs on UHF guard frequency and passed the information to Beaver Control, our GCI. Our pilot asked two A-4s from the second flight to descend and monitor the two mishap pilots, and we checked out the right window to see them peeling off in a descending right turn, on their way. We put the coordinates of the accident position into a spare waypoint on the INS and went into orbit over the point advising our remaining receivers that we needed them to stay in loose formation as we remained overhead of the site.

Beaver Control made us on-scene commander for the search and rescue and gave us the frequencies they were working. We made full use of the two VHF and two UHF radios on the KC-10. Luckily, we had no shortage of aircraft volunteering their services. The best choice available was a flight of two rescue helicopters already airborne, Calumet flight. We gave them a fast briefing including the air-to-air Yankee TACAN frequency to receive range and bearing from our aircraft orbiting overhead.

One of the downed A-4 pilots came up on his survival radio from his raft and reported seeing flares fired from near his location. With the rough seas and a 2,000-foot overcast, a rescue could be tough. Because of the adverse conditions, we let only the Calumet flight descend through the cloud layer to search, leaving another chopper and a HC-130 "Hurricane Hunter" in reserve, but at a safe distance. They spotted the flare-firing pilot first, and then the radio-equipped pilot vectored them to his position for pickup.

Within 18 minutes of ejection, both pilots were rescued, and we checked on their physical condition to help coordinate a recovery base with the necessary medical capabilities. They were both hypothermic and in shock with an assortment of cuts and bruises, but otherwise in good shape.

We had sent the various other aircraft home to ensure a safe work area and focused in on the needs at hand. Our rescue choppers with downed pilots aboard notified us that their low fuel state would not allow them to return to their base. During the rapid brainstorming session that followed on the search and rescue frequency, someone told us that the aircraft carrier USS *Ranger* was nearby and had a clear deck. We contacted the carrier asking for permission for Calumet flight to land and refuel; it was quickly granted. We also verified that the USS *Ranger* had medical personnel on deck and briefed them on the nature of the injuries.

Capt. Byrd with the two mishaps pilots the following day. Capt. Rotelli (left) and Capt. Bixler (right).

GCI had both the flight of helicopters and the carrier on radar, so we passed the Calumets a vector for the carrier and its TACAN frequency. They beelined for the ship and received first-class treatment from the Navy flight surgeons aboard. We remained on station as a radio relay until we were assured that the A-4 pilots no longer needed assistance and that the Calumet choppers were refueled and ready to fly to a shoreside medical facility if needed.

What had started out as a routine qualification flight in a beautiful Pacific sunrise could very well have had a sad ending, but thanks to briefings from our training flight folks back at home base during the last pilots' meeting, a little independent study on search and rescue procedures, and discussion among our crew about what we'd do if we had a receiver go down over water, we had a plan. You can never cover everything that might pop up, but it sure helps to have a big head start before things go wrong in a hurry.

(From left to right)
Maj. Michael Laney, Instructor Pilot
Capt. Gary C. Byrd, Pilot
Tech. Sgt. Richard Busch,
Instructor Flight Engineer
Master Sgt. Myron Troutman,
Flight Engineer

The KC-10 crew

As an eyewitness to this particular incident, I can testify that these jets had ceased flying and started coming apart. It was a horrifying thing to see, knowing that two guys were fighting for their lives amid all those flying aircraft parts.

An aircraft mishap board has to ask questions like, "Did the aircraft look recoverable?" and "Do you think the pilots made a good decision to eject?" Perhaps because I'm dual-qualified in the heavy KC-10 and the little supersonic T-38 trainer, those hit me as almost unthinkable questions. When a qualified pilot has ruled out plans A, B and C for regaining control of his aircraft and decides to punch out, how can you second guess that call? In pilot training, we were told that approximately 85 percent of all ejections are successful (i.e., no fatality or serious injury). When a pilot pulls the handles, he has said, in effect, "85 percent beats nothing at all." That, Sir, is one *very* brave move.

My hat's off to the professional life support technicians who maintained a well-seasoned ejection system like that on the A-4M in perfect working order. Those guys are the silent heroes of this tale.

The next day we saw the two Marine pilots after we came out of the briefing for that day's qualification mission. They were pretty well battered: cuts, bruises, eyes bloodied by windblast, but glad to be alive. They came over, shook our hands and sincerely thanked us for our help. They said it made them feel real good to know that we were up there aiding in their rescue — maybe almost as good as we felt to see those two safe and sound. ◄

Capt. Byrd is a KC-10A copilot on the 911 AREFS senior crew at Seymour Johnson AFB. His previous experience was in the KC-135A.
Reprinted from Combat Crew, April, 1987.

Making the Tough Call

By Lt. Richard J. Martin

WE were scheduled for a nine-hour reposition flight from Dakar, Senegal, to Lajes, Azores, with an operational delay en route. We had 23 crew and support personnel on board plus luggage and equipment; our P-3C weighed 134,850 pounds. The weather in Dakar was CAVU, temperature 34 degrees Celsius, winds 320/09 and the duty runway 01. We were at max gross weight and it was hot, which, in retrospect, set us up.

The pilot at the controls (PAC) was a qualified plane commander. I was in the right seat. We took the duty runway, and the PAC asked the flight engineer to set maximum power. The 80-knot power check was good, and I called

rotate at 131 knots.

As we lifted off, we developed a slight left swerve. I heard the feather button suck in, indicating auto-feather, and the PAC said, "We hit a bird." The flight engineer called, "Low power No. 1 engine," and turbine inlet temperature went off the gauge. The PAC immediately lifted the dead engine wing up to the optimum favorable bank angle for VMC air flight condition and climbed at V/50 three engine, which was 139 knots.

I looked down at my VSI, and we were climbing at 200 feet-per-minute. I thought, "Thank God for the auto-feather system." We brought the gear up, slowly accelerated and finished cleaning up the aircraft. Then it was time to handle the emergency and make the *tough* decision. I called for the E-handle on No. 1 engine and the emergency shutdown checklist. After completing the checklist, I called Dakar departure control and told them we had an emergency in progress and that we might be dumping fuel over the ocean and making a three-engine landing back in Dakar. I directed the flight engineer to review the NATOPS fuel planning charts and determine what three-engine max range distance was at our weight. It was approximately 3,200 miles.

I directed him to determine two-engine max range and had the navigator give me the distance to Lajes and Rota, Spain. It was 1,550 nautical miles to Lajes and 1,400 to Rota.

I chose Rota because the weather there was more predictable, and there are several emergency divert fields en route from Dakar to Rota. As I saw it, I had two choices: dump fuel and make an overweight landing in Dakar, or divert to Rota. Dakar has no VP maintenance support, and who knows how long it would take to fly in some support to fix the problem.

Two-engine max range at our gross weight and local air temperature was not even on the chart. We would have had to land immediately at any of the divert fields if we had lost another engine (at least until we were light enough). A question came to mind. Was I required to land immediately with an engine failure? I remembered the discussion in the OPNAVINST 3710.7 about pilot in command and power failures on multiengine aircraft. It says, "The pilot in command is responsible for the safe, orderly flight of the aircraft and well-being of the crew . . . responsibility for starting or continuing a mission with respect to weather or any other condition affecting the safety of the aircraft rests with the pilot in command."

With respect to a single-engine failure, it says, "The pilot in command may proceed to a selected destination if, after considering the following, the pilot in command decides that proceeding to that destination is as safe as landing at the nearest suitable airport:

A. The nature of the malfunction and the possible mechanical difficulties that might occur if flight is continued.

B. The altitude, weight and useable fuel at time of engine stoppage.

C. The terrain and weather conditions en route and at suitable landing points."

I called Dakar departure control and told them we were diverting to Rota and that we were working up a new flight plan. We climbed to 13,000 feet, our

max cruise altitude for our weight. The third pilot and navigator generated a new flight plan. We continued on to Rota and made an uneventful three-engine landing.

Postflight inspection of the No. 1 engine revealed that the bird impacted the center of the intake and compressor blades but did no appreciable damage to the engine. No. 1 engine was borescoped, thermocouples were inspected and the engine internally washed. Low and high-power turns were satisfactorily conducted, and the aircraft returned to service.

A couple of days later, I tried to determine if I should have done anything differently.

I decided that I would have dumped all the fuel I had in tank 5 to reduce my gross weight. This would have allowed the aircraft to start burning fuel out of the wing tanks sooner, allowing us to reach a safe two-engine aircraft gross weight earlier in the flight. I did not need this excess fuel to make it to my destination or an alternate. For our weight and existing air temperature, we would not make two-engine max range until we weighed about 105,000 pounds. But the P-3C also flies well at speeds considerably less than max range (i.e., loiter or less) at low altitudes. After dumping fuel, our weight would have been 118,000 pounds. Stall speed at this weight is approximately 130 knots. I had 78 knots to trade between the two-engine loiter and stall speed before I would have needed to land or put it into the big pond.

Everything worked out well the way we did it, but there were other ways and other options. Kick it around at your next ready room session. What would you have done? ◄

Lt. Martin was a P-3 plane commander and mission commander in VP 26, NAS Brunswick, Maine, at the time of writing. He is now an instructor flying T-34Cs with VT 6 at NAS Whiting.

Another Low Fuel Article

By Lt. E.E. Devita

A BEAUTIFUL, CAVU morning aboard the CV. We man and launch at 0630 in the Alert 15 Tanker to feed the grid. I think, "What a good deal. What more can you ask for but a launched alert on a beautiful day with a good chance of Bear pictures. How can anything go wrong?" I'm going to tell you.

The hop is pastry. Heading out to station to give an unknown amount to some fighter, not knowing your recovery time, with EMCON for an added attraction makes the hop more interesting.

The only available info from the E-2 is that I'm to give what I can on a one-hour cycle and to expect a ready deck at 0730. Not a problem. I can give 7.0 from my triple bubble A-7 and still land max trap. First, I give 2.5 to a thirsty F-14. My next customer takes 20 minutes to find me. Now I'm running out of time, but the E-2 says to wait for the second F-14 and expect a ready deck at 0800. Finally, the fighter joins, takes his 2.5 and my signal is RTB.

During the max range return I call inbound with "5.5 in-the-blind" on strike. While overhead in low holding at 0755, I get to watch the ship turn into the wind, launch one F-14, then Charlie the helo. After the helo refuels and launches, the ship turns away and forgets about me, the lone tanker overhead. Thinking it's time to give folks a heads up, I call in the blind on buttons 6 and 7 reporting my fuel state of 4.5. After a roger from the tower, I feel better, especially with good weather. With nothing happening I give another call at 3.5 to tower with another roger. At 2.5 I make another call with a roger, and I'm getting worried. Our Charlie Fuel is 2.4; but as I watch the deck, the first plane to taxi is the KA-6, so there will be gas in the air soon.

The launch is at 0915; and by the time the KA-6 calls sweet, I'm 1.5, which is tank state. Finally, I announce that I'm heading up to 10,000 feet to the tanker circle. I proceed up to angels 10 only to hear the Boss call me down first. After coming down for the break, I end up landing with 1.0, an unsat situation.

Just another example of how everyone is trying to kill you? Yes, but there are some things I learned that I will do next time. First of all, make sure you are talking to the right people. It turns out most of the "Rogers" from the tower were from one of the Boss' subordinates, not the Boss himself. Next time I will back those calls up with Departure, so that they also will know about my critical fuel state. It's also important to let Paddles know what the situation is. I assumed they heard me on button 6 and knew I was low state, but in actuality I almost got waved off for being long in the groove.

The bottom line is you, as the pilot in command, need to take charge. Getting a roger from the tower or Air Ops is not acceptable. You can't assume your message is getting through or the person responding to your call understands the criticality of your predicament. Next time I have this problem, I won't ask for gas, I will *demand* it. It's my life, and it's my job to look out for myself. ◄

Lt. Devita flies A-7s with VA 27.

Old A-6 Boys Learn Enough

By Cdr. J.C. Rosenberg, USN

I WAS a new bombardier/navigator (B/N) fresh out of the FRS, reporting to my first operational squadron, which had just returned from a successful combat deployment. I was happy about going to this particular squadron because they had just received a whole bunch of brand new A-6s. My pilot was a combat-cruise seasoned lieutenant. I was on top of the world and eager to prove my worth to my new squadron mates.

My second flight in the squadron was a night bombing hop. Not a low level, nothing fancy, just a plain old night hop right to the target, drop 12 practice bombs and come right back. Being the FNG in the squadron, I really planned it: the route down, the 12 different target runs, the route back. We would have 20,000 pounds of fuel, more than enough for a two-hour sortie in the A-6, especially since the route down and back was high altitude. You always had more fuel than you needed for this hop.

We launched on a beautiful clear night. Everything appeared to be working A-OK. Drop-tank fuel was transferring — system was working fine. I was beginning to feel like a real pro as we were cleared onto the target with three other aircraft. Then the system started to act up a little, and I was preoccupied with trying to get good hits on the run inbound and trying to figure out what was wrong with the system on the downwind. My pilot was busy trying to keep the pattern straight.

After the 10th run we turned downwind, and the master caution light came on. The low-fuel light had illuminated on the annunciator panel. How could that be? You always arrived back home with 4,000 to 5,000 pounds after this hop. There must be something wrong with the light.

There wasn't. We had 1,400 pounds in the fuselage and a little over 6,000 in the wings. We checked all the switches as we started a bingo climb for homeplate 140 nm away, squawking emergency. All switches were correct; we just couldn't get the fuel out of our wings. Some quick calculations showed us that we would either just make it home or flame out about two miles short. Too close to call. We were now down to about 900 pounds and looking for a suitable divert. There was only one, a civilian field with either a visual or ILS approach.

With no ILS capability, we would have to go for the visual and hope for good weather. A call to their tower confirmed that there was good weather. We set up for a visual straight-in with 600 pounds of fuel showing. I remember an AOM brief we had just had that talked about the fact that A-6s had flamed out with more fuel then we had showing. I prayed that our gauge was accurate. The runway was about 2,000 feet shorter then we were used too, but as light as we were, it shouldn't be a problem. The landing was uneventful, and we shut down with 200 pounds showing. We were embarrassed about landing there but were glad we and the aircraft had made it in one piece.

The next day the squadron came to our rescue with a starting unit and maintenance personnel. We managed to get enough fuel into the aircraft to get it home by fueling the drops and transferring them into the fuselage. Further investigation indicated the wing two-stage pressure regulator had failed, preventing the wing fuel from transferring into the fuselage. It was something we should have caught early on in the hop. If we had, we would have had plenty of fuel to get home. But we were too preoccupied with our bombing; and, besides, you always had plenty of fuel for this mission, right?

That happened 17 years ago. I'm a little older and a little smarter now. I don't ever assume anymore that I always have plenty of fuel for that routine hop. We were lucky. Other than the kidding from the ready room, our hurt pride and a good chewing out from the "Old Man," nothing serious had happened. Other A-6 crews haven't been that lucky.

There is nothing routine about our business; and as soon as you start thinking there is, you'll find yourself in that old familiar spot where you run out of airspeed, altitude and ideas all at the wrong time. ◄

Cdr. Rosenberg is the commanding officer of VA 95. He has had tours of duty with VA 145, VA 165 and CTF 77.

When things don't go as planned. . .

AMHAN Ronald Joslin, VA 37

will you be ready?